AMENDMENT OF THE CLAIMS

This listing of claims will replace all prior listings in this application.

Listing of Claims

1. (Previouisly presented) A method of fabricating a thin layer, in which a weak buried region is created by implanting a chemical species in a substrate in order to thereafter initiate a fracture of the substrate along the weak region to detach the thin layer therefrom, the method comprising:

a) implanting a first chemical species in the substrate at a first depth to form the weak buried region;

b) implanting at least one second chemical species, in the substrate at a second depth different from the first depth and at an atomic concentration higher than the atomic concentration of the first chemical species,

wherein the at least one second chemical species is less effective than the first chemical species at weakening the substrate and resides outside of the weak buried region, and

wherein steps a) and b) can be executed in either order;

c) diffusing at least a portion of the at least one second chemical species from the second depth into the weak buried region, and

d) initiating the fracture along the first depth.

2. (Previously presented) A fabrication method according to claim 1, wherein the second depth is greater than the first depth.

3. (Previously presented) A fabrication method according to claim 1, wherein the second depth is less than the first depth.

4. (Previously presented) A fabrication method according to claim 2, wherein implanting at least one second chemical species is carried out before implanting the first chemical species.

5. (Previously presented) A fabrication method according to claim 1, wherein diffusing at least a portion of the second chemical species further comprises applying a heat treatment.

6. (Previously presented) A fabrication method according to according to claim 1, wherein initiating the fracture further comprises applying a heat treatment.

7. (Previously presented) A fabrication method according to according to claim 5, wherein steps c) and d) are carried out simultaneously.

8. (Previously presented) A fabrication method according to according to claim 5, wherein applying the heat treatment comprises carrying out the heat treatment within a first thermal budget, wherein the first thermal budget is lower than a second thermal budget that would be necessary to initiate the fracture in the absence of steps b) and c).

9. (Previously presented) A fabrication method according to claim 5, wherein applying the heat treatment comprises carrying out the heat treatment within a first thermal budget by implanting an additional amount of the at least one second chemical species, such that the first thermal budget is lower than a second thermal budget required in the absence of the additional amount of the at least one second chemical species.

10. (Previously presented) A fabrication method according to claim 5, wherein applying the heat treatment comprises one or more of heating in a furnace, heating, or laser heating.

11. (Previously presented) A fabrication method according to wherein initiating the fracture includes applying mechanical stresses.

12. (Previously presented) A fabrication method according to claim 11, wherein applying the mechanical stresses comprises one or more of applying a jet of fluid, inserting a blade into the implanted region, applying traction, applying shear or bending stresses to the substrate, or applying acoustic waves.

13. (Previously presented) A fabrication method according to claim 1, wherein, before or during initiating the fracture, a thickener is applied to the substrate to serve as a support for the thin layer after the fracture of the thin layer from the substrate.

14. (Previously presented) A fabrication method according to claim 1, wherein, before or during initiating the fracture, a handle support is applied to the substrate, after which the thin layer is transferred onto a final support.

15. (Previously presented) A fabrication method according to claim 1 wherein the first chemical species comprises hydrogen ions.

16. (Previously presented) A fabrication method according to claim 1, wherein the at least one second chemical species comprises at least one rare gas.

17. (Previously presented) A thin layer fabricated by a method according to claim 1.

18. (Previously presented) A thin layer according to claim 17, further comprising a support underlying the thin layer.

19. (Previously presented) A fabrication method according to claim 3, wherein implanting at least one second chemical species is carried out before implanting the first chemical species.

20. (Previously presented) A fabrication method according to according to claim 6,wherein steps c) and d) are carried out simultaneously.

21. (Previously presented) A fabrication method according to according to claim 6, wherein applying the heat treatment comprises carrying out the heat treatment within a first thermal budget, wherein the first thermal budget is lower than a second thermal budget that would be necessary to initiate the fracture in the absence of steps b) and c).

22. (Previously presented) A fabrication method according to according to

claim 7, wherein applying the heat treatment comprises carrying out the heat treatment within a first thermal budget, wherein the first thermal budget is lower than a second thermal budget that would be necessary to initiate the fracture in the absence of steps b) and c).

23. (Currently amended) A method of fabricating a thin layer, in which a weak buried region is created by implanting a chemical species in a substrate in order to thereafter initiate a fracture of the substrate along the weak region to detach the ~~the~~ thin layer therefrom, the method comprising:

a) implanting a first chemical species in the substrate at a first depth to form the weak buried region;

b) implanting at least one second chemical species, in the substrate at a second depth different from the first depth and at a concentration higher than the concentration of the first chemical species,

wherein the at least one second chemical species is less effective than the first chemical species at weakening the substrate and resides outside of the weak buried region, and

wherein steps a) and b) can be executed in either order;

c) diffusing at least a portion of the at least one-second chemical species from the second depth into the weak buried region, and

d) initiating the fracture along the first depth,

wherein the method is carried out by either applying a heat treatment for less time and at a lower temperature then that necessary in the absence of step b), or by implanting an additional amount of the at least one second chemical species to avoid exceeding a predetermined time/temperature regime.